Project FY22-IM-010: Investigation of Fusarium Head Blight in Tennessee

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1. What are the major goals and objectives of the research project?

1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON, with emphasis on a new fungicide, Miravis Ace®,
2) Generate data to further quantify the economic benefit of FHB/DON management strategies;
3) Develop more robust "*best-management practices*" for FHB and DON; and
4) Generate data to validate and advance the development of FHB and DON risk prediction models.

2. What was accomplished under these goals or objectives? *(For each major goal/objective, address these three items below.)*

What were the major activities?

1) Field trials were conducted at 2 locations in West TN with 4 varieties, varying in their susceptibility to FHB. Five different fungicides were evaluated along with a non-treated check within each of the varieties. Disease ratings and yield were recorded.
2) Data were shared with regional cooperators for further analysis of the economic benefit of FHB/DON management strategies
3) Through the factorial design at multiple locations, results will help develop more robust BMP for FHB and DON in Tennessee
4) Data generated have been shared to compare to risk prediction models to validate and advance the development of the models

What were the significant results?

There were significant disease differences across varieties and fungicides dependent upon location. Illustrating how both a more tolerant FHB variety, regardless of location and disease, yielded just as well as more susceptible FHB varieties. Additionally, depending upon location/disease pressure influenced whether a foliar fungicide was needed to protect yield or not.

List key outcomes or other achievements.

These data will be presented to growers as well as previous years data from this initiative, highlighting the advantages to using a more FHB tolerant variety as well as scouting for disease and using the FHB forecast model to best guide when fungicide applications are warranted and when they are not, saving producers money and reducing unnecessary fungicide applications.

3. What opportunities for training and professional development has the project provided?

Graduate and undergraduate student learned how to scout for wheat diseases and look for FDK as well as seen first-hand factorial field plot design and analysis of data from such a design.

4. How have the results been disseminated to communities of interest?

The results will be disseminated during the coming wheat season (on utcrops.com and news.utcrops.com) as well as in county production meetings to producers in the winter. Additionally, the data will be shared with the MGMT-IM group to be incorporated into the larger wheat dataset.

5. **What do you plan to do during the next reporting period to accomplish the goals and objectives?**
   Additional factorial field trials will be conducted in the 2025-2026 season, with similar number and variation of varieties and fungicide treatments, with the potential to add inoculum with overhead irrigation (from a pivot) to have a higher disease pressure location then we have had previous years.